DEPARTMENT OF TRANSPORTATION

QUESTIONNAIRE
REGARDING TRANSITIONING FROM THE CURRENT TITLE-21 PROTOCOL TO A NEW PROTOCOL

The California Department of Transportation (Caltrans) is currently considering the development of regulations regarding new technologies and new technical specifications to replace the current automated vehicle identification protocol currently set out in the California Code of Regulations (commonly referred to as the "Title-21 protocol"). Caltrans is very interested in hearing from stakeholders as to their views on the transitioning from Title-21 protocol to a new protocol, most likely the 6C protocol.

Caltrans will be holding two public workshops (July 8, 2015 in Oakland and July 22, 2015 in Fontana) to solicit initial comments on the transition from the current Title-21 protocol.

However, in anticipation and in connection with those workshops and other activities to facilitate public participation in the regulatory process, Caltrans invites you to complete the following questionnaire. This information will greatly assist Caltrans as it begins the process of considering new regulations.

Please provide your responses following each question. Please feel free to forward this questionnaire to any other interested parties.

Please e-mail your responses to: **Title.21.Changes@dot.ca.gov**.

Please list the name of the person completing the questionnaire and the name of the agency or company you represent.

NAME   _____

AGENCY   _____3M Company_____

1.   **Are there any alternatives to the transition to 6C, including comparable Federal regulations or regulations/protocols in other states?**

3M Response: Currently there are five UHF RFID protocols in use for tolling applications in the U.S., in addition to the Caltrans Title-21 protocol. The remaining five protocols are ISO10374 (ATA), Transcore SeGo, ASTMv6, Kapsch TDM/IAG, and ISO18000-6C. Any of these five

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protocols could be an alternative for consideration. There are many factors for consideration including performance, lifespan of technology, cost (both initial and on-going), and supplier diversity. 3M believes that the 6C protocols provides the best mix of these factors.

2.   What are the benefits of the transition to 6C? What are the drawbacks?
3M Response:
Benefits
- The 6C protocol uses international open standard with many suppliers with more competition rather than a standard with limited adoption and limited supplier base.
- Use of 6C protocol would open the market to more suppliers and drive down overall costs (equipment and services), which would reduce supplier lock-in.
- There would be significant saving on transponder cost, which would likely drive up adoption rate among the public and drive up toll road utilization rate.
- Transition to 6C would enable high revenue collection rate and lower operating costs by electronically reading transponders issued by other tolling agencies (assuming there is a cross agency agreement in place), instead of using cameras or human beings to catch those vehicles.
- Passive tag technology eliminates the need for battery or transponder replacement.
- Transition to 6C in California would leverage world-wide adoption of this technology for cost, availability, and evolution.
- 6C provides the capabilities for secure authentication of transponders while T21 does not currently have such feature.

Drawbacks
- If the current readers do not support 6C protocol, procurement of 6C compliant readers will be required to support this transition.

3.   Please discuss the factors involved, including projected timetables, for transitioning to a new protocol, with respect to the following:

a. Transponder procurements/existing inventories:
- The lead time for transponder is around eight weeks.

b. Toll-system modifications:
- If existing RFID readers cannot support 6C standard, prior to deploying 6C transponders, all readers need to be replaced for models that can read both T21 and 6C transponders.

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- The lane and back-office systems would need to be adapted to handle the information content of a new protocol.
- Orderly migration of hardware and software throughout the State of California would need careful planning and an extended period of time to be determined by Caltrans (perhaps 1 year).

c. Agency administrative changes:
- No administrative changes are anticipated.
- Some level of adjustment of the existing solution is anticipated as the 6C tag ID is typically longer than the 32-bit ID T-21 is using.

d. Public education, outreach, and marketing:
- Due to the significant cost saving from this transition, especially on transponders, wider customer outreach and marketing should help educate the public about the near-term to long-term cost saving and encourage a higher adoption rate.

e. Issues regarding certification:
- No issues are anticipated other than obtaining the standard 6C-related certifications.

f. Issues regarding three-position transponders:
- 3M does not currently market a three-position self-declaration transponder for the 6C protocol. 3M is not aware of any other vendor providing such a product to the market. Such a product is technically feasible.

4.   Please describe how the transition:

a. Impacts business and/or employees:
- There should be no impact on businesses and/or employees.

b. Impacts small businesses:
- There should be no impact on small businesses.

c. Impacts jobs or occupations:
- Jobs will be created to convert the Caltrans Title-21 solution to a 6C solution. No additional impact on jobs anticipated.

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d. Reporting requirements:
- No impact is anticipated.

e. Impacts individuals.
- It is anticipated that individual citizens will benefit from this transition in two ways: 1) reduced cost of tags to tolling agencies (who usually pass the cost saving to end users) from >$10 in general to <$2 in general; 2) their 6C tags can be read by tolling agencies outside of California (assuming across agency agreements are in place), enabling potential use of open lanes to shorten travel time, as well as simplify payment process and time.

5. **Will the regulation affect the ability of California businesses to compete with other states by making it more costly to produce goods or services here?**
- This transition should not impact the costs to produce goods or services for California businesses.

6. **What are the costs that businesses and individuals may incur to comply with this regulation over its lifetime?**
- No impact to businesses and individuals is anticipated due to the need to comply with this regulation.

7. **What are the fiscal impacts on state and local government?**
- Switching to a 6C-based solution will require a certain level of initial investment in buying and installing 6C related equipment.
- Over a longer term, state and local government should be able to benefit from increased tolling revenue due to the increased usage/adoption from citizens because the cost of tolling tag is dramatically lower.
- State and local government should also see reduced reader/tag related costs and increased competition from suppliers by transitioning from an older, limited adoption standard to an international open standard that is widely adopted.

8. **Are there any issues regarding fairness of competition?**

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- Transitioning from T-21 to 6C is expected to increase competition due to transitioning from a standard with limited adoption and limited supplier base to an international open standard with many suppliers.
- More companies will be able to compete on equipment, tags, and maintenance contracts, which will help drive down the costs in general.

9.   Are there any issues regarding individual privacy?
- No impact on individual privacy is anticipated.
- There is an enhanced security version of 6C called Gen2V2 that provides secure authentication based on strong encryption.

10.   Please provide comments on any other relevant issues not addressed above.

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE